

IAO STREAM FLOOD CONTROL PROJECT

Public Scoping Meeting

August 12, 2003



Project Objective

Select and construct a remedial measure to reduce the erosion of the streambed and levees that threatens the integrity of the flood control structure



Purpose of this Meeting

- Present the planning effort to date
- Obtain your reaction to the efforts to date
- Hear your concerns and significant issues to be addressed in the Environmental Assessment



Concerns and Significant Issues

- Scoping meeting is not intended to resolve issues
- Will be addressed appropriately in the Environmental Assessment



Results of this Meeting

- Better Environmental Assessment
- Selection of an alternative that is:
 - Publicly acceptable
 - Environmentally acceptable
 - Engineeringly sound (meets project objectives)
 - Economically feasible



IAO STREAM FLOOD CONTROL PROJECT

A Presentation of Alternatives



Project Sponsors

- U.S. Army Corps of Engineers,
Honolulu District
- County of Maui, Department of Public
Works and Environmental Management



Project Area

Iao Stream Drainage basin is a 10 square mile basin beginning at boundary between the Lahaina and Wailuku Judicial Districts, and extends along the crests of the Kahoolawe and Kipilau Ridges to the Pacific Ocean.



Project Area

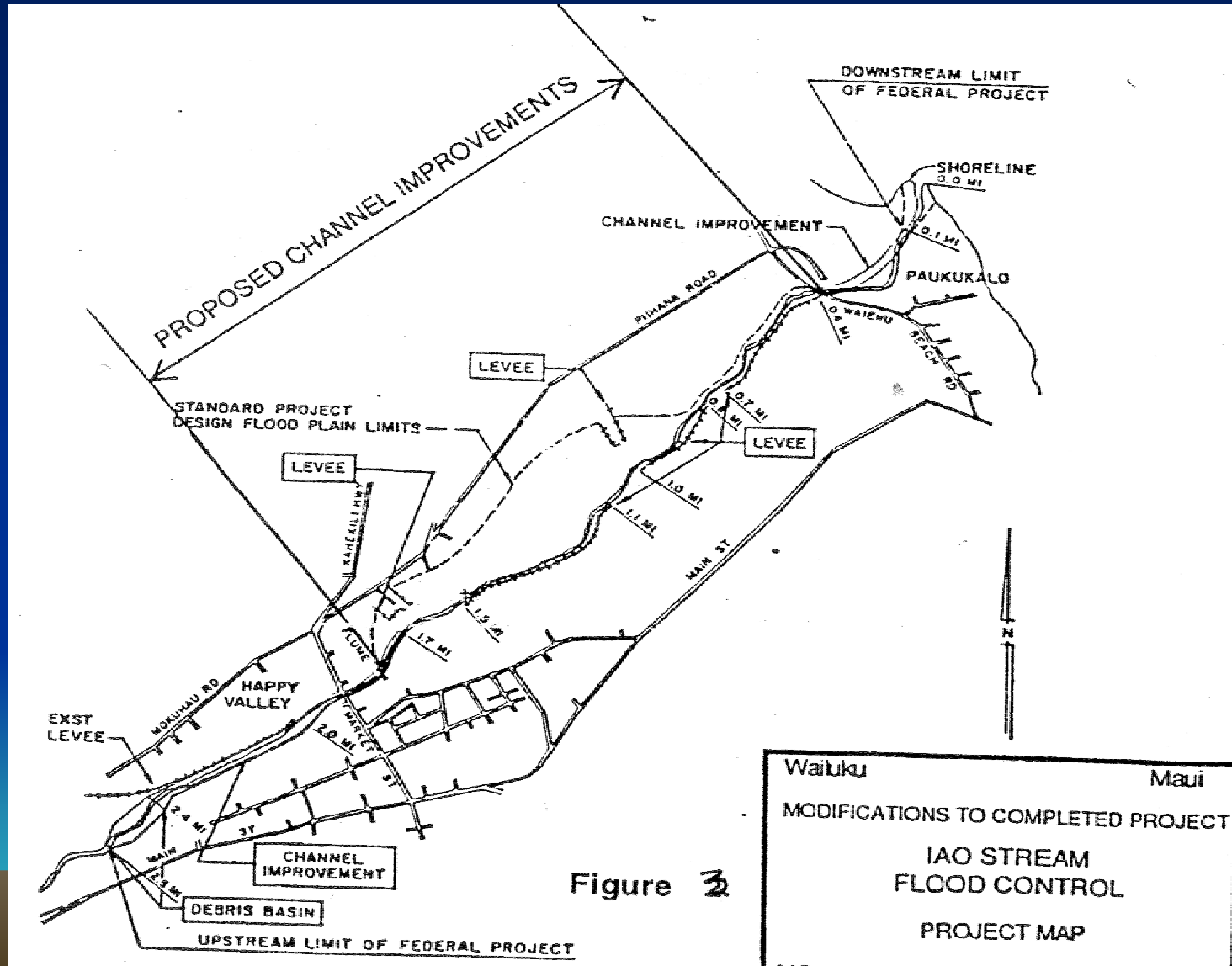
The project limits within which the Army Corps of Engineers and Department of Public Works and Environmental Management propose stream improvements are defined as a 7,200 feet long area between Market Street and Waiehu Beach Road in Wailuku town.



Project Area



Project Area



Project Background

- 1981 First flood control project completed.
- 1981 – 1989 flood damage caused erosion which compromised channel stability, and weakened portions of the existing levees.
- 1995 Reconnaissance study to modify existing flood control project.
- 1999 – 2004 Feasibility Study and Environmental Assessment.



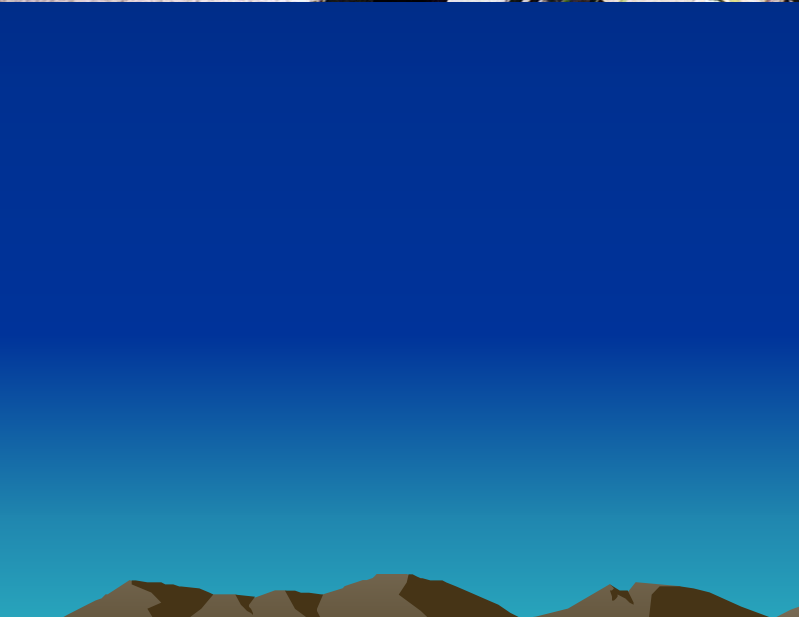
Project Objectives

- Reduce levee and streambed erosion
- Protect adjoining property from flooding during major storm events
- Include a low flow channel in the design



Stream Erosion Photos



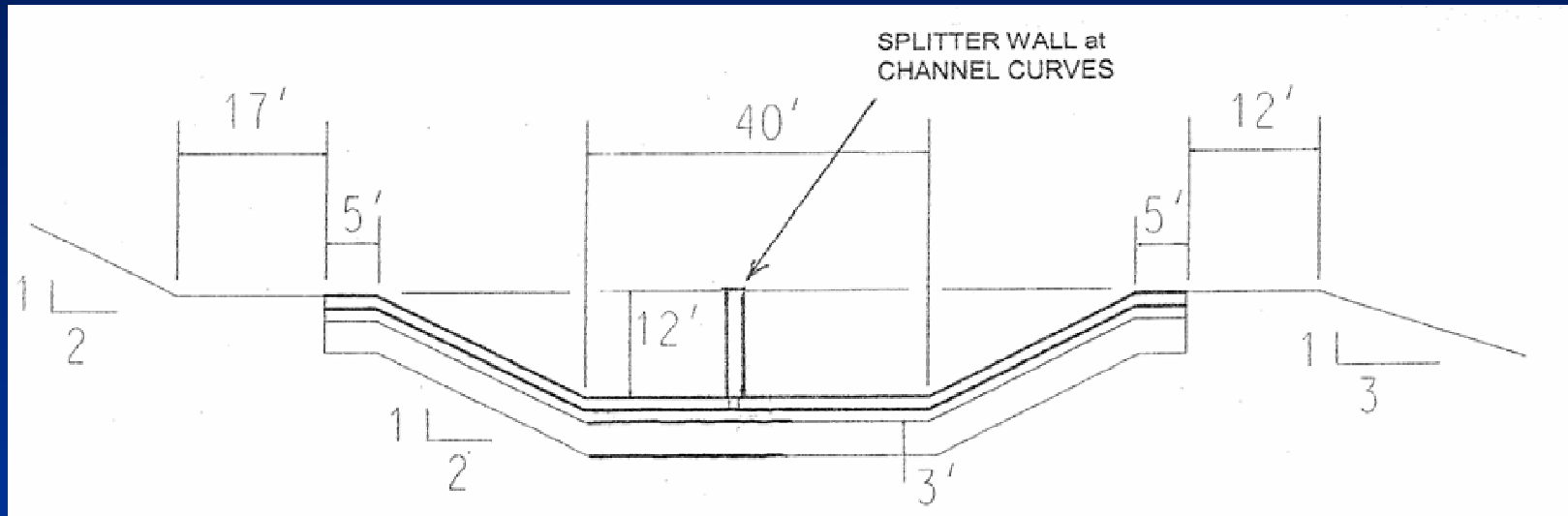


Project Design

Design Alternatives I through IV



Alternative I: Trapezoidal Channel



- Trapezoidal concrete channel following existing stream alignment.
- Channel will have a top width of approximately 90 feet and will include interior splitter walls at all channel curves.
- Design flows contained within channel, eliminating floodplain on left bank.

Alternative I:

Trapezoidal Channel

Advantages

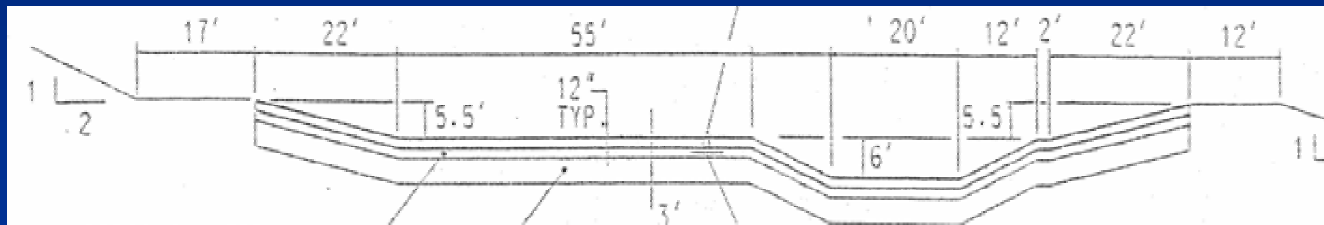
- Project objectives will be achieved
- Feasible from engineering and cost perspective

Disadvantages

- Conversion of natural stream bottom to concrete invert



Alternative II:



- Rectangular and compound, concrete-lined channel along straightened alignment.
- Channel will have a top width of approximately 145 feet.
- Design flows contained within channel, eliminating floodplain on left bank.

Alternative II:

Rectangular and Compound Channel

Advantages

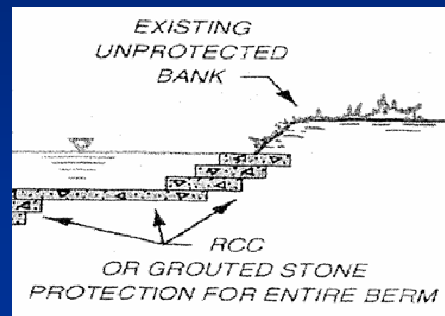
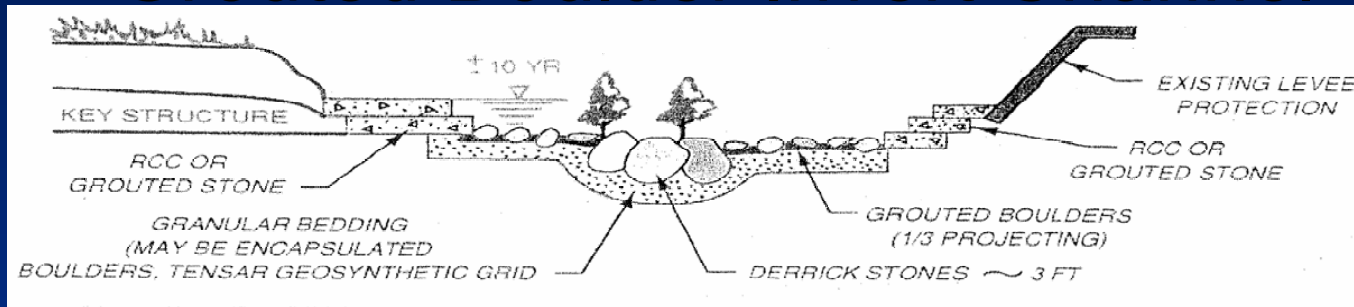
- Project objectives will be achieved
- Easy to maintain

Disadvantages

- Most costly alternative
- Conversion of natural stream bottom to concrete invert



Alternative III: Grouted Boulder Invert Channel



- Grouted boulder invert channel to follow existing stream alignment.
- Large stones with roller compacted concrete stream bank protection.
- Channel lining, retaining walls, and raising levee walls will be necessary.
- Use of existing levees and retain left bank floodplain.

Alternative III :

Grouted Boulder Invert Channel

Advantages

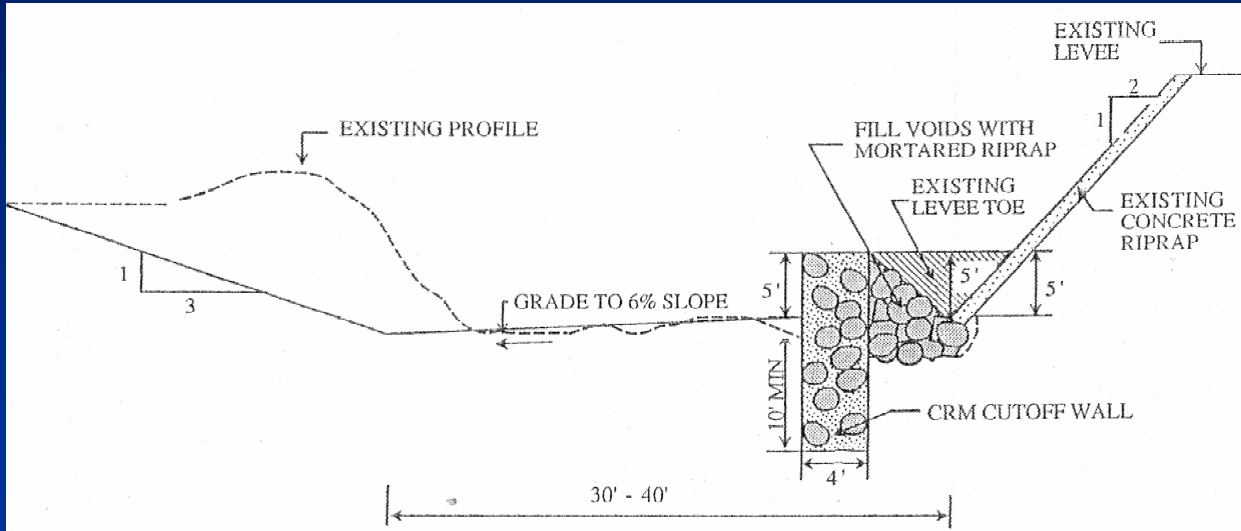
- Project objectives will be achieved
- Feasible from engineering and cost perspective
- Most environmentally friendly alternative

Disadvantages

- More difficult to maintain than concrete invert



Levee Reconstruction



- Reconstruction of levee toe with concrete riprap filling, widening basal stream area, and flattening slope of left bank. Complete with a CRM cutoff wall fronting the existing levees.
- Use of existing levees and retain left bank floodplain.

Alternative IV : Levee Reconstruction

Advantages

- Low initial cost

Disadvantages

- Project objectives will not be achieved
- High maintenance cost

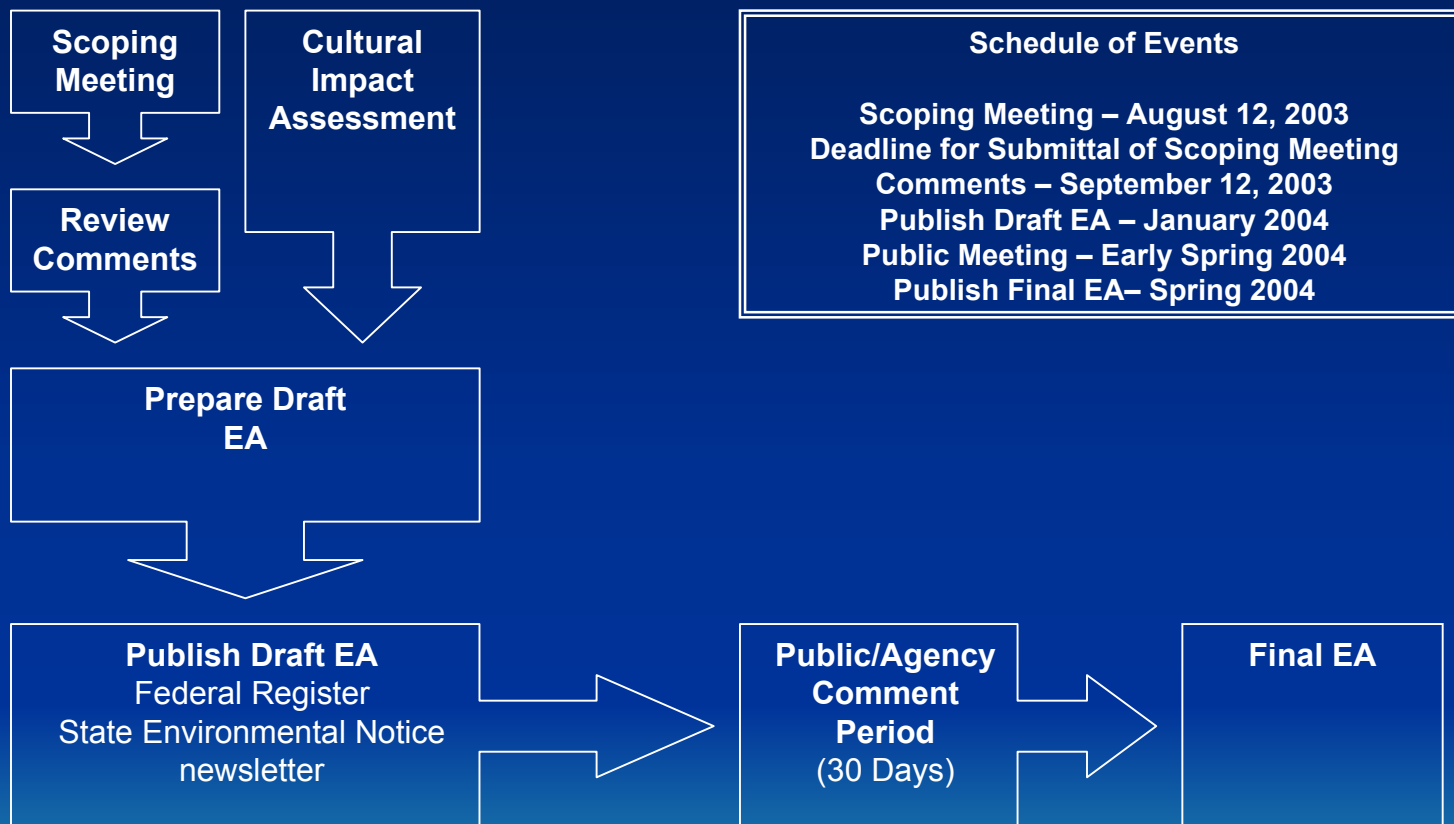


Comparison of Alternatives

		I	II	III	IV
	Alternative Description	Trapezoidal Channel	Rectangle and Compound Channel	Grouted Boulder Invert Channel	Levee Construction
1	Utilization of Flood Plain	Floodplain may be utilized for other uses	Floodplain may be utilized for other uses	Left bank remains floodplain	Left bank remains floodplain
2	Visual Aesthetics	Concrete channel replaces natural stream	Concrete channel replaces natural stream	Most similar in appearance and function to natural stream	Retains natural stream bottom
3	Ease of Maintenance	Easiest to maintain	Somewhat easy to maintain	Difficult to maintain	Difficult to maintain, require repairs
4	Environmental Acceptability	May not be acceptable	May not be acceptable	Most favorable	May be acceptable
5	Technical Adequacy	Meets project objectives	Meets project objectives	Meets project objectives	Does not meet objectives, risk of failure



NEPA Process Flowchart



After the EA

- Finding of no significant impact (FONSI)
- Engineering Plans and Specifications
- Permits
- Construction Contract



Project Information

U.S. Army Corps of Engineers Website:

<http://www.poh.usace.army.mil>

lao Stream Flood Control Project Webpage:

<http://www.poh.usace.army.mil/cw/lao%20SFC.html>

